REMARKS

Claim 1 is amended as suggested by the examiner. This should remove the basis for the objection to that claim.

Claims 7, 16 and 17 are canceled, and the §112 rejection of those claims is therefore moot.

Regarding the art rejections

The art rejections are respectfully traversed.

The main point of disagreement in this case lies in whether the selection of specific parameters as set forth in applicants' claim can be fairly characterized as merely "optimization", as the examiner alleges.

In applicants' claimed invention, two types of pigments are described. The first type is a synthetic silica. That synthetic silica is characterized as having an oil absorption of 90 ml/100g to 200 ml/100 g, a BET specific surface area of 80 m^2/g to 104 m^2/g and an average particle diameter of 1.0 μm to 3.0 μm.

The second type of pigment is a precipitated calcium carbonate-silica composite, characterized in having an oil absorption of 100 ml/100g to 250 ml/100 g, a BET specific surface area of 26 m^2/g to 30 m^2/g and an average particle diameter of 1.0 μm to 10 μm, or a mixture of a) and b).

As to the first type (synthetic silica), the invention involves the selection of three values, simultaneously: oil absorption, BET surface area, and particle diameter. In each case, the primary reference (Sekiguchi) describes a broad range which encompasses the narrower set of values of the applicants' claims. However, Sekiguchi does not contain specific teachings of BET surface area and particle diameter, at least, within applicants' ranges. As to BET surface area, applicant's range is from 80-104 m^2/g, whereas Sekiguchi describes a broad range of 50 or more, a preferred range of 50 to 400 and specific teachings at 180-255. As to particle size, applicant's range is from 1 to 3 microns, whereas Sekiguchi describes a wide range of 0.1 to 30 microns and shows examples at 3.5 to 5.1 microns.

The examiner alleges that "these variables would be expected to have an effect on several aspects of the resulting inkjet recording medium, for example the speed at which it can be coated, its ink absorption ability, and the running of ink on the surface of the sheet."

However, the references do not support this statement, nor has the examiner provided scientific reasoning to support it. All the references describe with respect to BET surface area and particle size are broad ranges; there is nothing in any of the references that supports that idea that, within Sekiguchi's broad ranges, a selection of any particular value is results-effective. Nor is there any suggestion in any of the references that the selection of applicant's specific ranges is desirable for any reason. Therefore, the references do not describe either the BET surface area or particle size as being result-effective variables within the broad ranges described by Sekiguchi.

The examiner goes on to say that "one of ordinary skill in the art at the time of the invention would have recognized that these large ranges could be further optimized to take advantage of benefits taught be Sekiguchi but to also provide further optimized conditions with respect to other qualities of the inkjet recording medium that were not or primary interest to Sekiguchi." The examiner's position here seems to be that one of ordinary skill in the art would be able to recognize that somewhere in Sekiguchi's "large ranges" there might be some optimal set of conditions. But this is not the proper test. The proper analysis requires that the art go a step further and provide some suggestion as to how the "large ranges" could be optimized, i.e., the art should some guidance as to how the "large ranges" could be optimized. Neither Sekiguchi nor the secondary references do this in any way whatsoever. As mentioned in the first response, when Sekiguchi actually becomes specific and makes selections within his broad range of BET surface area and particle size, Sekiguchi's selections are outside of applicant's ranges.

The examiner points to Sekiguchi column 4 lines 45-54 as supporting the idea that "the optimized parameters specifically provide for better ink absorption, image density and color development, and improved storability." However, the "optimized parameters" here are neither BET surface area nor particle size—they are pore sizes, an altogether different criterion. At no point does Sekiguchi relate BET surface area or particle size to any results. To the contrary—see his Tables 12, in which synthetic amorphous silicas g, h, i and j perform more poorly than the amorphous silicas, even though they all have particle sizes and surface areas more or the less the same. The difference between the "good" and "bad" silicas in Sekiguchi is clearly shown to relate to pore characteristics, the surface area or particle size.

A similar analysis leads to the same conclusion regarding applicants' second type of pigment. Sekiguchi does not describe precipitated calcium carbonate-silica composite of

this type, and so the examiner relies on Shimada. Shimada describes a precipitated calcium carbonate-silica composite. Shimada is silent as to oil absorption, and therefore does not describe applicant's range of 100 ml/100g to 250 ml/100 g. There is no teaching in the reference which suggests that oil absorption values are important at all, for any reason whatsoever, with respect to this particular type of pigment. As to BET surface area, Shimada simply states that the value should be no greater than 100 m^2/g and preferably no greater than 80 m^2/g. Shimada describes no minimal value for BET surface area; the smallest actual value Shimada mentions is 60 m^2/g, or fully double that of the high end of applicant's range of 26 m^2/g to 30 m^2/g. Nothing suggests any reason to select applicants' specific (and narrow) range.

One of ordinary skill in the art would not look to Sekiguchi's teachings regarding synthetic silica pigments for guidance as to how to select a particular precipitated calcium carbonate-silica composite from the range of materials encompassed by Shimada's general teachings. Note that Shimada itself contrasts precipitated calcium carbonate-silica composite with synthetic silica pigments. For Shimada's purposes, synthetic silica pigments lead to poor results, especially sharpness of image. See Table 2, comparative examples 1 and 2. This alone clearly suggests to the skilled person that synthetic silica pigments are much different materials than precipitated calcium carbonate-silica composites. There is no basis in the references for one of ordinary skill to presume that physical characteristics useful in synthetic silica pigments would be applicable to the precipitated calcium carbonate-silica pigments. Furthermore, Sekiguchi itself distinguishes his specific synthetic silica even from other silica products, as can be seen by comparing his column 5 lines 28 et seq. with the list of materials described in column 4 line 55 through column 5 line 27. Again, the narrowness of Sekiguchi's actual teachings as to pigment types would lead the skilled artisan not to consider the teachings of Sekiguchi to be applicable to Shimada's very different pigments.

Applicants have found that by selecting specific pigments, as defined by the various claims, in combination with the selection of a proper viscosity, one can prepare a recording medium that performs well with both offset and inkjet printing processes, and which is easily manufactured at high rates. The unexpected results achieved with this invention are summarized in table 2 of applicant's application. None of the references appears to be concerned with recording media for offset printing applications at all. Therefore, once again, there is nothing in the cited art that would lead one to make applicants' selections

for any purpose, much less the specific purpose of forming a medium that performs well in very different printing processes.

The Hayasaka reference is cited only for its teachings as to viscosity. Once again, Hayasaka describes only a broad range of viscosities, which may or may not overlap with applicants' ranges. There is no suggestion that the viscosity is results-effective within Hayasaka's broad ranges.

The remaining references appear to be cited as showing specific features of certain of applicant's dependent claims, but do not overcome the shortcomings of the primary references. In particular, they do not establish that any of applicants' selections involve parameters that were known in the art to be results-effective.

For the foregoing reasons, applicants' maintain that their invention as now claimed is novel and unobvious over the cited art. A notice of allowance is therefore requested.

Respectfully submitted,
GARY C. COHN PLLC

Gary C. Cohn
Registration No. 30,456
Phone: (215) 938-1981
P. O. Box 313
Huntingdon Valley, PA 19006